PREVALENCE OF STATISTICAL TESTING OF BASELINE VARIABLES IN SPORTS MEDICINE RCT's

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Introduction

WHAT IS A P-VALUE?
- Probability that you would get the outcome if null were true

2010 CONSOLIDATED STANDARDS OF REPORTING TRIALS (CONSORT)
- Discourages reporting statistical testing (e.g. p-values) of baseline differences between groups in RCTS

WHY STATISTICAL TESTING IS ILLOGICAL?
- RCTS randomize participants to groups…thus we know any differences are due to chance.

HOW DOES IT MISLEAD INVESTIGATORS/READERS?
- Ex. 2007 RCT operative vs non-operative mgmt. as treatment for clavicle fractures (REF, McGee 2007)
- Operative group: 85% men
- Non-operative group: 69% men
- Outcome measured: strength

PURPOSE OF STUDY:
- Determine the proportion of RCTs in the sports medicine literature that included statistical tests of baseline differences

TABLE I Demographic Data on the Patients and Characteristics of the Fractures

Parameter	Operative Group (N = 62)	Nonoperative Group (N = 49)	P Value
Male	53	34	0.062
Female	9	15	0.062

Methods

REVIEWED TOP 10 HIGHEST-IMPACT FACTOR SPORTS MEDICINE JOURNALS
- According to the 2014 Journal Citation Reports

MEDLINE SEARCH IN PUBMED
- "clinical trial[pt] OR randomly OR randomized OR randomised"

TWO REVIEWERS INDEPENDANTLY EXAMINED ARTICLES:
- to identify RCTs, baseline tables, and significance testing of baseline differences
- In either the baseline table or text

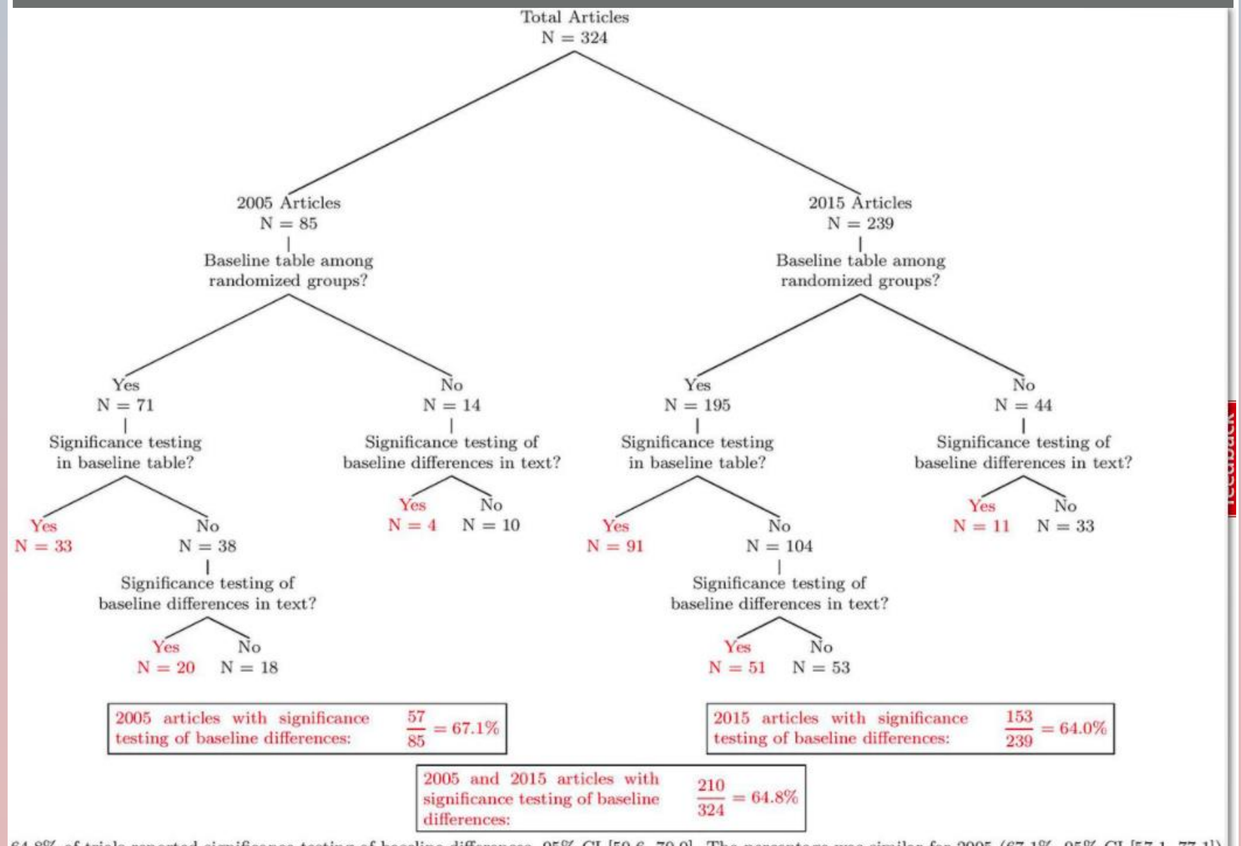
Results

Overall, 64.8% of studies reported statistical testing of baseline differences (95% CI (59.6, 70.0)).

2005: 67.1%

CONSORT STATEMENT 2010

2015: 64.0%



64.8% of trials reported significance testing of baseline differences, 95% CI [59.6, 70.0]. The percentage was similar for 2005 (67.1%, 95% CI [57.1, 77.1]) and 2015 (64.0%, 95% CI [57.9, 70.1]).

Significance testing of baseline differences in sports medicine RCTs from 2005 to 2015. RCT, randomised controlled trial.

Conclusions

OVER 2/3s OF RCTs IN SPORTS MEDICINE JOURNAL ARTICLES
- Still conduct statistical testing for baseline differences

PREVIOUS STUDY:
- (Knol et.al, 2009)
- 7 leading medicine journals from 2008 to 2010
- p values listed in 35% of the studies' baseline tables

DANGER IN SPORTS MEDICINE:
- Smaller samples sizes = more misleading p-values
- We found 80% of RCT articles n<100

LIMITATIONS:
- Missed RCT articles
- 2005, 2015 may be outliers

WHAT NOW?
- Prior to analysis, authors should select baseline covariates (i.e. sex) thought to affect outcome and adjust for